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GLOSSARY

A

Andrews Curve - A graphical approach to viewing patterns of similarity or dissimilarity based on multi-dimensional data.

Anthropogenic - Effects or processes that are derived from human activity.

B

Base Flow - The sustained portion of stream discharge that is drawn from natural storage sources and not affected by human activity or regulation.

Baseline Monitoring - Data collection intended to define existing biological conditions and to set up a framework for long-term study.

Benthic - That portion of the aquatic environment inhabited by organisms which live permanently in or on the bottom.

Benthic Macroinvertebrate - An aquatic animal lacking a backbone and generally visible to the unaided eye.

Best Management Practice (BMP) - Structural or nonstructural practice that is designed to minimize the impacts of change in land use on surface and groundwater systems.

Biomonitoring - The use of living organisms to assess environmental conditions.

Bioretention Basin - Water quality BMP engineered to filter the water quality volume through an engineered planting bed, consisting of a vegetated surface layer (vegetation, mulch, and ground cover), planting soil, and sand bed (optional), and into the in-situ material. Also called a Rain Garden.

C

Channelization - Strengthening, widening, deepening, clearing, or lining of existing stream channels.

Clean Water Act - A law enacted by the United States Congress in 1972 and enforced by the Environmental Protection Agency on the national level and the Georgia Environmental Protection Division on the local level. The Clean Water Act established three main goals: "zero discharge" or the elimination of polluting discharges to the nation's waters by 1985; "fishable and swimmable waters" or the restoration and protection of water quality and wildlife habitat; and "no toxins in toxic amounts" or the prohibition of the discharge of toxic pollutants in amounts that are toxic to the environment or life.

Clingers - An aquatic macroinvertebrate that is able to cling to substrates and maintain itself in fast flowing water.

Coastal Plain - The physiographic province that lies along the Atlantic coast and extends inland to the Piedmont physiographic province. This area is generally characterized by low gradient, meandering streams with mobile sand/silt or gravel substrates.

Confluence - A flowing together of two or more streams.

D

Dissolved Oxygen - The amount of oxygen freely available in water and necessary for aquatic life and the oxidation of organic materials.

GLOSSARY

E

Ecoregion - A physical area that is defined by ecological factors such as meteorology, elevation, plant and animal speciation, landscape aspect, and soils.

Ecosystem - All of the component organisms of a community and their environment that, together, form an interacting system.

Electrofishing - Fish sampling method using electrical currents to temporarily stun fish to facilitate capture.

Embeddedness - Refers to the extent to which stream substrate (gravel, cobble, boulders and snags) is filled and/or covered with silt, sand, or mud.

Epifaunal Substrate - The variety of natural structures in the stream, such as cobble (riffles), large rocks, fallen trees, logs and branches, and undercut banks, available as refugia, feeding, or sites for spawning and nursery functions of aquatic macrofauna.

EPT - A group of three orders of insects: mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) which are used to determine stream health based on their sensitivity to pollution.

F

Family Biotic Index (FBI) - The general tolerance/intolerance of an assemblage that considers the numbers of individuals in each tolerance class at the family level taxonomic resolution.

Fecal Coliform Bacteria - A group of organisms common to the intestinal tracts of humans and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

Fish Barrier - An obstacle in a stream or river, such as a dam or elevated culvert, that prevents the up and downstream movement of fish and other aquatic species.

Flood Plain - For a given flood event, that area of land adjoining a continuous water course which has been covered temporarily by water.

Functional Feeding Group (FFG) - A categorization of a biological community based on its trophic or feeding level within its environment (shredder, predator, scraper...).

G

Gabion - A wire basket or cage that is filled with gravel and generally used to stabilize stream banks and improve degraded aquatic habitat.

Geographic Information System (GIS) - A method of overlaying spatial land and land use data of different kinds. The data are referenced to a set of geographical coordinates and encoded in a computer software system. GIS is used by many localities to map utilities and sewer lines and to delineate zoning areas.

Glide - Section of a stream with a relatively high velocity and with little or no turbulence on the surface of the water.

Global Positional System (GPS) - Network of satellites that emit continuous location-finding radio signals; GPS receivers use the signals from multiple satellites to determine their exact three-dimensional coordinates (latitude, longitude, and height).

GLOSSARY

H

Habitat - The environment in which an organism lives.

Headcut - A place with an abrupt change in a stream profile, generally formed by the presence of a rock layer resistant to erosive force of the stream flow.

Hilsenhoff Biotic Index (HBI) - The general tolerance/intolerance of the assemblage which considers the number of individuals in each tolerance class.

I

Impaired Stream - An aquatic system in which the water quality is degraded to an extent such that resident biological communities lack the diversity and/or abundance that would otherwise be present.

Impervious Cover - A surface composed of any material that significantly impedes or prevents natural infiltration of water into soil (i.e. sidewalks, houses, parking lots...).

Imperviousness - The percentage of impervious cover within a defined area.

Impoundment - A body of water contained by a barrier, such as a dam.

Instream Erosion - Erosion of stream banks caused by high flow rates.

Incised Channel Evolution Model (ICEM) - ICEM defines the stages through which stream channel morphology progresses after disturbance and can act as a useful predictor of future conditions.

Index of Biotic Integrity (IBI) - A stream assessment tool that evaluates biological integrity based on characteristics of the fish and benthic assemblage at a site.

Infiltration - The portion of rainfall or surface runoff that moves downward into the subsurface rock and soil.

Insectivore - An animal that feeds primarily on insects.

Intermittent Streams - Streams flowing temporarily or periodically rather than continuously throughout the year.

Intolerant Species - Populations of animals and/or plants that are adversely affected even at low levels of degradation.

Invertivore - An animal that primarily feeds on invertebrates.

L

Lentic - A non-flowing or standing body of fresh water, such as a lake or pond.

M

Metric - A characteristic of a habitat or biological community structure that changes in some predictable way with increased disturbance or divergence from normal, natural conditions.

N

National Pollutant Discharge Elimination System (NPDES) - Mandated by Congress under the Clean Water Act, a two-phased national program to address nonagricultural sources of stormwater discharge and prevent harmful pollutants from being washed into local water bodies by stormwater runoff.

Nonpoint Source Pollution - Contaminants such as sediment, nitrogen and phosphorous, hydrocarbons, heavy metals, and toxins whose sources cannot be pinpointed but rather are washed from the land surface in a diffuse manner by

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stormwater runoff.

Nutrients - Chemicals that are needed by plants and animals for growth (e.g., nitrogen, phosphorus). In water resources, if other physical and chemical conditions are optimal, excessive amounts of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation, and subsequent decay of plants, especially algae. Some nutrients can be toxic to animals at high concentrations.

O

Outfall – Site of discrete water and/or effluent discharge.

P

Peak Flow - Refers to a specific period of time when the discharge of a stream or river is at its highest point.

Perennial Streams - A body of water that normally flows year-round in a defined channel or bed, and is capable, in the absence of pollution or other manmade stream disturbances, of supporting bottom dwelling aquatic animals.

Physiographic Provinces - A region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Piedmont Upland - This physiographic province bordered by the Atlantic Coastal Plain to the east and the Appalachian Mountains to the west and is generally characterized by rolling terrain with streams of moderate gradient and cobble/gravel substrates.

Q

Quality Assurance/Quality Control (QA/QC) - A system of procedures, checks, audits, and corrective actions to ensure that research design and performance, environmental monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

R

Rain Gardens - See Bioretention Basin.

Rapid Bioassessment Protocol (RBP) - A synthesis of techniques and methodologies for quickly assessing habitat and biological conditions in stream systems.

Rapid Stream Assessment Technique (RSAT) - A stream monitoring protocol for visually assessing instream and localized watershed conditions.

Reference Conditions - Conditions (i.e. habitat, chemical, biological) that reflect least impaired or best attainable conditions in a given area.

Reference Streams - Streams which exhibit highest quality or least impaired habitat conditions that are used as a standard to which all other streams are compared.

Resource Management Area (RMA) - That component of the Chesapeake Bay Preservation Area that is not classified as the Resource Protection Area. RMAs include land types that, if improperly used or developed, have the potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area.

Resource Protection Area (RPA) - That component of the Chesapeake Bay Preservation Area comprised of lands at or near the shoreline of water bodies that have an intrinsic value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation to

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the quality of state waters. All other land outside RPAs within Fairfax County is considered RMAs.

Restoration - Improving conditions within a natural system so that its functional characteristics are comparable to its original, unaltered state.

Retrofit - The modification of stormwater management systems through the construction and/or enhancement of wet ponds, wetland plantings, or other BMPs designed to improve water quality.

Riffle - A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

Riparian Buffer - A transitional area around a stream, lake, or wetland left in a natural state to protect the waterbody from runoff pollution. Development is often restricted within such zones.

S

Shannon-Wiener Index - A measure of general richness and composition of a biological community.

Shredder - Macroinvertebrate functional feeding group in which the individuals feed off of large pieces of plant material (i.e. leaves, twigs and bark) that have fallen into the stream.

Silt Fence - Temporary sediment barrier consisting of filter fabric, sometimes backed with wire mesh, attached to supporting posts and partially buried.

Stormwater Runoff - That portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

Subwatershed - A defined land area within a watershed drained by a river, stream or drainage way, or system of connecting rivers, streams, or drainage ways such that all surface water within the area flows through a specific point.

T

Taxon (plural - Taxa) - A taxonomic category or group, such as a phylum, order, family, genus, or species.

Tolerant Species - Animals and/or plants that can withstand high levels of degradation.

Total Maximum Daily Load (TMDL) - The maximum levels of a particular pollutant water body can receive in a given day without violating pre-established water quality standards. Total Maximum Daily Loads are the sum of point and nonpoint source loads.

Triassic Basin - This physiographic province is a subprovince of the Piedmont Upland. The geology consists largely of red sedimentary (sandstone, siltstone, shale, and conglomerate) rocks characterized by wide and gently rolling hilltops, with long gently sloping sideslopes and nearly level areas.

Turbidity - A measure of the suspended solids in a liquid.

U

Urban Runoff - Stormwater from city streets and adjacent domestic or commercial properties that carries nonpoint source pollutants of various kinds into the sewer systems and receiving waters.

W

Watershed - A discrete unit of land drained by a river, stream, drainage way or system

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of connecting rivers, streams or drainage ways such that all surface water within the area flows through a single outlet.

Watershed Restoration - Improving current conditions of watersheds to restore degraded fish habitat and provide long-term protection to aquatic and riparian resources.

Wetland - Land that is saturated with water and which contains plants and animals that are adapted to living on, near, or in water. Wetlands have hydric soils and are usually located between a body of water and land.